

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Jeff EDER

Serial No.: 09/761,670

Filed: October 17, 2000

For: A METHOD OF AND SYSTEM FOR EVALUATING CASH FLOW AND ELEMENTS OF A  
BUSINESS ENTERPRISE

Group Art Unit: 3692

Examiner: Sigfried Chencinski

**Brief on Appeal**

Sir or Madam:

The Appellant appeals the rejection of claim 85 and claim 86 in the January 3, 2007 Office Action for the above referenced application.

This Brief on Appeal is responsive to the Office Communication November 2, 2009.



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## **1. Real party in interest**

Asset Reliance, Inc. (dba Asset Trust, Inc.) is the assignee of 100% interest in the above referenced patent application.

## **2. Related appeals**

An Appeal for U.S. Patent Application 10/166,758 filed on June 12, 2002 may be affected by or have a bearing on this appeal. An Appeal for U.S. Patent Application 10/743,417 filed on December 22, 2003 may be affected by or have a bearing on this appeal. An Appeal for U.S. Patent Application 10/750,792 filed on January 13, 2004 may be affected by or have a bearing on this appeal. An Appeal for U.S. Patent Application 11/278,419 filed on April 1, 2006 may be affected by or have a bearing on this appeal.

## **3. Status of Claims**

Claim 85 and claim 86 are rejected and are the subject of this appeal. The allowance of claims in co-pending applications has led to the cancellation of claim 43, claim 44, claim 45, claim 46, claim 48, claim 49, claim 50, claim 51, claim 52, claim 54, claim 55, claim 56, claim 57, claim 58 claim 59, claim 60, claim 61, claim 62, claim 63, claim 64, claim 65, claim 66, claim 67, claim 68, claim 69, claim 70, claim 71, claim 72, claim 73, claim 74, claim 75, claim 76, claim 77, claim 78, claim 79 herein to avoid double patenting objections. The appellant reserves the right to restore said claims in the event the allowed claims do not issue in one or more patents in a timely fashion. The addition of claims to a co-pending application that cover the same subject matter has led to the cancellation of claim 80, claim 81, claim 82, claim 83 and claim 84 herein to avoid double patenting objections. Claims 1 through 42, 47, 53, 87 and 88 were previously cancelled without prejudice.

## **4. Status of Amendments**

There are no outstanding amendments.

## **5. Summary of Claimed Subject Matter**

One embodiment of a method of and system for evaluating cash flow and elements of a business enterprise according to the present invention is best depicted in Figure 1 through 12 of the specification. Figure 1 gives an overview of the major processing steps which include obtaining data for use in analysis and transforming the data into a model of the real world financial performance of a commercial enterprise using the data.

**Independent Claim 85** - One embodiment of the method of and system for evaluating cash flow and elements of a business enterprise is exemplified in independent claim 85 where a process



instructs a computer system to identify a specific set of data required for analyzing a commercial enterprise, prepares the data for use in analysis, analyzes the data in order to identify a number of statistics before developing a model of enterprise current operation financial performance using said statistics through automated learning. Support in the specification for this claim is detailed below:

The computer system is described in FIG. 3, reference numbers 100, 110, 111, 112, 113, 114, 115, 116, 117, 118, 120, 121, 122, 123, 124, 125, 126, 127, 128, 130, 131, 132, 133, 134, 135, 136, 137 and 138, 200, 300, 400, 500, 600, 700, 800 and 900 and line 28, page 11, through line 27, page 13 of the specification.

*a) identifying a set of data required for analyzing a commercial enterprise, preparing the identified set of data for use in analysis, analyzing at least a portion of said data in an automated fashion as required to identify one or more statistics selected from the group consisting of pattern, trend, ratio, average, elapsed time period, percentage, variance, monthly total and combinations thereof -* is described in FIG.1, reference numbers 200 and 300; FIG. 5A, reference numbers 10, 15, 30, 35, 40, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 212 and 213; FIG. 5B reference numbers 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 232 and 235; FIG. 6 reference numbers 306, 307, 308, 309, 310, 312, 313, 315, 316, 317, line 15, page 10 through line 27, page 11 and line 15, page 15 through line 33, page 40 of the specification. The acquisition, conversion and storage of data in accordance with a common data dictionary is also described in line 40, column 35 through line 25, column 39 of cross referenced U.S. Patent 5,615,109.

*b) using at least a portion of said statistics and data to develop a model of enterprise current operation financial performance using automated learning -* is described in FIG. 8A, reference numbers 501, 502, 503, 504, 525, 530, 535, 540, 545 and 550, FIG. 8B, reference numbers 505, 507, 508, 525, 530, 535, 540, 545 and 550, FIG. 8C, reference numbers 511, 513, 514, 525, 530, 535, 540, 545 and 550, FIG. 8D reference numbers 570, 571, 572 and 573, 525, 530, 535, 540, 545 and 550, FIG. 9, FIG. 11A, reference numbers 602, 603, 604, 605, 606, 607, 608, 609, 610, 611 and 612, FIG. 11 B, reference numbers 623 and 624 and line 5, page 44 through line 27, page 56 of the specification.

*c) where the model mathematically expresses the dynamic characteristics and behavior of one or more elements of value as including direct effects and indirect effects from each element of value –* is described in FIG. 5B, reference number 222, FIG. 11A, reference numbers 602, 603, 604, 605, 606, 607, 608, 609, 610, 611 and 612, FIG. 11 B, reference numbers 623 and 624, line 5, page 32 through line 9, page 32 and line 5, page 44 through line 27, page 56 of the specification.



Claim 86 - The limitations and activities associated with dependent claim 86 are described in a number of places including FIG. 8A, reference numbers 501, 502, 503, 504, 525, 530, 535, 540, 545 and 550, FIG. 8B, reference numbers 505, 507, 508, 525, 530, 535, 540, 545 and 550, FIG. 8C, reference numbers 511, 513, 514, 525, 530, 535, 540, 545 and 550, FIG. 8D reference numbers 570, 571, 572 and 573, 525, 530, 535, 540, 545 and 550, FIG. 9 and line 5, page 44 through line 27, page 53. The activities comprise using a variety of techniques to complete a number of automated learning steps.

## **6. Grounds of rejection to be reviewed on appeal**

**Issue 1** - Whether the invention described in claim 85 and claim 86 has utility under 35 U.S.C. 101?

**Issue 2** - Whether claim 85 is patentable under 35 U.S.C. 103(a) over Sandretto (U.S. Patent 5,812,988)?

**Issue 3** - Whether claim 86 is patentable under 35 U.S.C. 103(a) over Sandretto (U.S. Patent 5,812,988) in view of Barr (U.S. Patent 5,761,442)?

**Issue 4** - Whether claim 85 and/or claim 86 are enabled under 35 U.S.C. 112, first paragraph?

**Issue 5** – Whether claim 85 and/or claim 86 are indefinite under 35 U.S.C. 112, second paragraph?

**Issue 6** – Informality not identified by the Examiner.

## **7. The Argument**

### **Grouping of Claims**

For each ground of rejection which Appellant contests herein that applies to more than one claim, such additional claims, to the extent separately identified and argued below, do not stand and fall together.

**Issue 1 - Whether the invention described in claim 85 and claim 86 has utility under 35 U.S.C. 101?**

The claims are patentable because the claim rejections are based on a number of errors in the facts and in the law. Because of these errors, the arguments presented by the Examiner fail to establish a prima facie case of a lack of utility and/or non statutory subject matter for every rejected claim as detailed below.

**Errors 1 and 2** - It is well established that *“an applicant's assertion of utility creates a presumption of utility that will generally be sufficient to satisfy the utility requirement of 35 U.S.C. 101. See, e.g.,*



*In re Jolles*, 628 F.2d 1322, 206 USPQ 885 (CCPA 1980); *In re Irons*, 340 F.2d 974, 144 USPQ 351 (CCPA 1965); *In re Langer*, 503 F.2d 1380, 183 USPQ 288 (CCPA 1974); *In re Sichert*, 566 F.2d 1154, 1159, 196 USPQ 209, 212-13 (CCPA 1977)". It is also well established that "the examiner has the initial burden of challenging an asserted utility. Only after the examiner has provided evidence showing that one of ordinary skill in the art would reasonably doubt the asserted utility does the burden shift to the applicant to provide rebuttal evidence sufficient to convince one of ordinary skill in the art of the invention's asserted utility. *In re Brana*, 51 F.3d 1560, 1566, 34 USPQ2d 1436, 1441 (Fed. Cir. 1995) (citing *In re Bundy*, 642 F.2d 430, 433, 209 USPQ 48, 51 (CCPA 1981)). Also of note is the fact that the "Supreme Court noted that one example of a statutory "process" is where the process steps provide a transformation or reduction of an article to a different state or thing (*Diehr*, 450 U.S. at 183, 209 USPQ at 6). In *Alappat*, the Court held that "data, transformed by a machine" "to produce a smooth waveform display" "constituted a practical application of an abstract idea." *State Street*, 149 F.3d at 1373. In *Arrhythmia*, the Court held "the transformation of electrocardiograph signals" "by a machine" "constituted a practical application of an abstract idea." *Id.* Likewise, in *State Street*, the Court held that "the transformation of data" "by a machine" "into a final share price, constitutes a practical application of a mathematical algorithm." *Id.* Thus, while *Diehr* involved the transformation of a tangible object – curing synthetic rubber – the Court also regards the transformation of intangible subject matter to similarly be eligible, so long as data represent some real world activity. In *re Bilski*, 545 F.3d 943, 88 U.S.P.Q.2d 1385 (2008) generally follows these prior decisions and states that the data transformed by a process must represent an object or substance that physically exists. Errors in the claim rejections for a lack of utility include:

Error #1) The rejection of independent claims 85 is based on a conclusory statement that the invention described in the claim lacks utility. Claim 86 is rejected because it depends on the rejected independent claim. The claim rejection is based entirely on a conclusory statement. In rejecting the claim, the Examiner failed to explain why the automated development of a model of current operation financial performance is not useful. The complete failure to provide an explanation supported by evidence leads to the inevitable conclusion that the Examiner has failed to establish a prima facie case that would support a §101 rejection of claim 85 and claim 86.

Error #2) The application specification asserts that the claimed process produces models that have utility in supporting the optimization of purchasing requisitions, the analysis of company operations and the management of company operations. In rejecting the claim, the Examiner



failed to explain why the asserted utility would not be useful. The complete failure to provide an explanation supported by evidence leads to the inevitable conclusion that the Examiner has failed to establish a prima facie case that would support a §101 rejection of claim 85 and claim 86.

**Error 3** – An additional error in the rejections for lack of utility are the result of the fact that the claim rejections are based on a conclusory statement that is demonstrably false. As discussed under Error #1 and Error #2, claim 85 and claim 86 are rejected for allegedly not having any utility. This conclusory statement is demonstrably false as the claimed invention transforms data representative of an organization and its elements of value into statistical models that have utility in analyzing, modeling and managing financial performance. As discussed under Error #2, the models also have utility in supporting purchasing requisition optimization. By basing the claim rejection on a demonstrably false conclusory statement, the Examiner has failed to establish a prima facie case that would support a §101 rejection of claim 85 and claim 86.

**Errors 4 and 5** – The claim rejections are based on 35 U.S.C. §101 which states: *Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.* Errors in the claim rejections caused by the apparent failure to meet any of the statutory requirements for claim rejection include:

**Error #4)** Is a failure to acknowledge that the rejected claims meet the statutory requirements for patentability. The rejected independent claims describe a process that uses a computer to transform data into a model that identifies and outputs a tangible net contribution of one or more elements of value to an organization current operation value by component of value. The model has utility in organization analysis, modeling and management. There is no statutory basis for giving any weight to a conclusory statement that the claimed invention lacks utility and/or ignoring the evidence in the specification and cross reference patent that the claimed invention has utility and meets the statutory requirements for patentability. This error affects claim 85 and claim 86.

**Error #5)** Failure to acknowledge the fact that the claim rejections are based on apparent misrepresentations regarding the teachings of the instant application. These apparent misrepresentations may be a product of the fact that the Examiner does not appear to have a level of skill in the relevant arts that is average or better. Affects both claims.

**Errors 6 and 7** – In *Dickinson v. Zurko*, 119 S. Ct. 1816, 50 USPQ2d 1930 (1999), the Supreme Court held that the appropriate standard of review of USPTO findings are the standards set forth in



the Administrative Procedure Act ("APA") at 5 U.S.C. 706 (1994). The APA provides two standards for review – an arbitrary and capricious standard and a substantial evidence standard. Errors in the claim rejections caused by the apparent failure to meet any of the requirements of the APA include:

Error #6) Failure to acknowledge the fact that the claim rejections fail under the substantial evidence standard. Errors 1 through 5 clearly show that the relevant Office Action fails to provide even a scintilla of evidence to support the non statutory subject matter rejection of claim 85 and claim 86, and that as a result the claim rejections fail to meet the substantial evidence standard.

Error #7) Failure to acknowledge the fact that the claim rejections fail under the arbitrary and capricious standard. The Appellant respectfully submits that the non statutory subject matter rejection of claim 85 and claim 86 also fails to pass the arbitrary and capricious test for a number of reasons including the fact that:

- a) no rational underpinning has been provided to support the conclusion of a lack of utility (see errors 1 through 3),
- b) there is no rational connection between the statutory requirements for establishing utility, the agency fact findings and the claim rejections (see errors 4 and 5),
- c) there is no rational connection between the claim rejections under this Issue and the prior agency fact findings regarding U.S. Patent 6,249,768 (hereinafter, Tulske), and
- d) prior agency fact-findings have shown that 35 U.S.C. 101 requirements for statutory subject matter are apparently not always applied during the prosecution and allowance of large company patent applications (i.e. Tulske and Evidence Appendix, page 45). This apparently unequal application of the law comprises an arbitrary and capricious violation of 35 USC 3.

As detailed above, the Examiner has based the claim rejections under this issue on seven errors in the facts and the law. When the seven errors are multiplied by the number of claim rejections affected by each error, the total number of errors associated with the rejection of claims under Issue 1 is fourteen (14). Because of these errors, the claim rejections do not meet either standard of the APA and the prima facie case of a lack of utility cannot be properly established.

Summarizing the preceding discussion, the Appellant respectfully submits that the Examiner has failed to produce the evidence required to satisfy the requirements of the APA and/or establish a prima facie case of non-statutory subject matter/lack of utility for a single claim.



**Issue 2 - Whether claim 85 is patentable under 35 U.S.C. 103(a) over Sandretto (U.S. Patent 5,812,988)?**

The claims are patentable because the claim rejections are based on a number of errors in the facts and in the law. Because of these errors, the cited document (Sandretto) and the arguments related to the cited document fail to establish a prima facie case of obviousness for every rejected claim as detailed below.

**Errors 1 through 10** – It is well established that: *“in determining the difference between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious but whether the claimed invention as a whole would have been obvious (Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983)).”* Furthermore, it is well established that: *A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).* Errors in the claim rejections caused by the failure to acknowledge the fact that all the cited references teach away from the invention described in claim 85 and claim 86 include:

**Error #1)** Is a failure to acknowledge the fact that Sandretto teaches away from the claimed development of models. Sandretto teaches away from every aspect of the claimed invention. Claim 85 teaches analyzing organization data in order to develop a model. Sandretto teaches away by teaching the use of predetermined models.

*In Step 70 net present values (NPVs) for each of the assets are determined, preferably by reference to one of several predetermined discounting models in Step 80. The discounting models in Step 80 specify if and how cash flows are to be adjusted for inflation, the risk-return type asset pricing model to be used for discounting, and how the discount rate is determined from the risk-return type asset pricing model and from economic variables including an initial estimate of the risk measure for each asset (Column 17, Line 43 through 51).*

By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and newness of claim 85.

**Error #2)** Is a failure to acknowledge that Sandretto teaches away from the claimed development and use of statistical models. Sandretto teaches away from every aspect of the claimed invention. Claim 85 teaches analyzing organization data in order to develop a statistical model of current operation financial performance. Sandretto teaches away by teaching a method that purports to determine the actual value of each item (aka asset or company, see Sandretto, Column 8, Lines 52 - 53). By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and



newness of claim 85.

Error #3) Is a failure to acknowledge the fact that Sandretto teaches away from the claimed use of automated learning. Sandretto teaches away from every aspect of the claimed invention. Claim 85 teaches the use of automated learning to develop models. Sandretto teaches away by teaching reliance on a process that only has the ability to iterate data that has been provided by a user in accordance with pre-determined models (see Sandretto, Column 3, Line 21 through Line 37). By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and newness of claim 85.

Error #4) Is a failure to acknowledge the fact that Sandretto teaches away from the claimed modeling method. Sandretto teaches away from every aspect of the claimed invention. Claim 85 teaches the development of statistics that can be used to model current operation financial performance. Sandretto teaches away by teaching a method that relies exclusively on the adjustment of input variable values (the discount rate) in order to back-fit the value of a plurality of items (aka assets) to a known portfolio value. By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and newness of claim 85.

Error #5) Is a failure to acknowledge that Sandretto teaches away from the claimed market efficiency assumptions. Sandretto teaches away from every aspect of the claimed invention. Claim 85 describes a model development method that does not rely on any assumptions about market efficiency. Sandretto teaches away by teaching an analysis method that relies on efficient asset pricing (see Sandretto, Column 3, Lines 29 through 31). By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and newness of claim 85.

Error #6) Is a failure to acknowledge the fact that Sandretto teaches away from the claimed enterprise value model. Sandretto teaches away from every aspect of the claimed invention. The claimed invention teaches and relies on the fact that there are at least three ways to increase the value of a business: increase the value of current operation cash flow, increase the value of market sentiment and increase the value of the enterprise real options. Sandretto teaches away by teaching that there is only one category of enterprise value, cash flow (see table below).



Enterprise value model per 09/761,670	Enterprise value model per Sandretto
Enterprise value = value of current operation cash flow + value of market sentiment + value of real options	Value of cash flow

By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and newness of claim 85.

Error #7) Is a failure to acknowledge that Sandretto teaches away from the claimed method for discounting cash flow. Sandretto teaches away from every aspect of the claimed invention. The specification describes the calculation of value for a plurality of elements of value using a single discount rate (i.e. the cost of capital) for each and every element of value. Sandretto teaches away by teaching the adjustment of the estimated risk and the associated discount rate for each item (aka asset) as required to back-fit to a known portfolio value (see Sandretto, Column 9, L 20 through L 25). By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and newness of claim 85.

Error #8) Is a failure to acknowledge that Sandretto teaches away from the claimed role of elements of value. Sandretto teaches away from every aspect of the claimed invention. The claimed invention teaches that element of value performance drives the components of value (revenue, expense and capital change) and current operation. Element of value performance is modeled by creating a statistical summary for each element of value. Sandretto teaches away by teaching that external factors (i.e. industrial production levels and economic conditions) determine revenue, expense and cash flow by item (see Sandretto, Column 37, line 32 through Column 38, line 51).

Aspect	Sandretto teaches	09/761,670 teaches
Revenue	Driven by external factors	Driven by element of value performance
Expense	Driven by external factors	Driven by element of value performance
Capital Change	No relevant teaching	Driven by element of value performance
Cash Flow	Driven by external factors	Driven by element of value performance
Current Operation	No relevant teaching	Driven by element of value performance

By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and newness of claim 85.

Error #9) Is a failure to acknowledge that Sandretto teaches away from the claimed method of data management. Sandretto teaches away from every aspect of the claimed invention. Claim



85 teaches that data are analyzed in order identify a set of data that should be used in analysis. Sandretto teaches away by teaching that only three known variables are required for completing an analysis (see Sandretto, Column 3, Line 21 through Line 25). By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and newness of claim 85.

Error #10) Is a failure to acknowledge the fact that Sandretto teaches away from the claimed analysis of the elements of value. Sandretto teaches away from every aspect of the claimed invention. Claim 85 teaches the use of analysis to identify the indirect effects of each element of value on the other elements of value and current operation financial performance. Sandretto teaches away by teaching that every asset is independent (see Sandretto, Column 17, Line 43 through 51) and does not affect the other assets. By exclusively teaching methods that teach away from the claimed invention, Sandretto provides additional evidence of the novelty, non-obviousness and newness of claim 85.

**Errors 11 through 23** - It is well established that “when determining whether a claim is obvious, an examiner must make ‘a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.’ In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995). Thus, ‘obviousness requires a suggestion of all limitations in a claim.’ CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing In re Royka, 490 F.2d 981, 985 (CCPA 1974)) Furthermore, the Board of Patent Appeal and Interferences recently confirmed (In re Wada and Murphy, Appeal No. 2007- 3733) that a proper, post KSR obviousness determination still requires that an examiner must make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis added). In other words, obviousness still requires a suggestion of all the limitations in a claim. Errors in the claim rejections caused by the apparent failure to acknowledge the fact that the cited documents do not teach one or more limitations of the claimed invention include:

Errors #11 through #23) Are related to failures to acknowledge the fact that the cited document does not teach or suggest one or more limitation of claim 85, including:

- a) identifying a set of data required for analyzing a commercial enterprise (#11), and*
- b) preparing the identified set of data for use in analysis (#12), and*
- c) analyzing at least a portion of said data in an automated fashion as required to identify one or more statistics selected from the group consisting of pattern, trend, ratio, average, elapsed time period, percentage, variance, monthly total and combinations thereof (#13 - #21),*
- d) using at least a portion of said statistics and data to develop a model of enterprise current*



*operation financial performance using automated learning (#22), and*

*e) where the model mathematically expresses the dynamic characteristics and behavior of each element of value as including direct effects and indirect effects from each element of value (#23).*

**Error 24** It is well established that *"in order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned."* *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992). Error 24 arises from the fact that the cited reference is not reasonably pertinent to the claimed invention as it relates exclusively to the evaluation of efficiently priced assets. As is well known to those of average skill in the art, the analysis of the financial performance of an organization requires consideration of a number of factors that do not need to be considered when evaluating efficiently priced financial assets including:

- a) the fact that the return from the elements of value and items of the organization are generally unknown,
- b) the fact that the elements of value and items of the organization may interact and that this interaction may affect their value and the value of the organization,
- c) the fact that the organization may have real options for growth that need to be evaluated and managed,
- d) the fact that there is no market, efficient or otherwise, for the elements of value and items of the organization, so pricing cannot be efficient,
- e) the fact that the organization may have a current operation that needs to be evaluated and managed,
- f) the fact that many of the risks associated with the elements of value and items of the organization can be diversified away,
- g) the fact that the value of the elements of value and items of the organization are generally unknown, and
- h) data describing the performance of different elements of value and items is often contained in a plurality of internal systems.

Furthermore, the primary reference relies on the now discredited capital asset pricing model and efficient market hypothesis. Because these teachings cannot explain financial asset behavior in allegedly efficient markets over the last 5, 10, 15, 20, 25 or 40 years they are not pertinent to the evaluation and management of financial assets that are traded in one or more markets, let alone



the evaluation and management of the items and element of value of an organization for which no market exists. Because the cited reference is not pertinent to the claimed invention, the prima facie case of obviousness cannot be established. Affects all claims.

**Errors 25 through 28** – It is well established that when *"the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)"*. Errors in the claims rejections caused by the failure to acknowledge that principles of operation of the Sandretto invention would have to be changed to replicate the functionality of the claimed invention, include:

Error #25) One principle of operation that Sandretto relies on is the calculation of the actual value of each item (see Sandretto, Column 8, Lines 52 - 53). This principle of operation would have to be changed to replicate the functionality of the claimed invention and recognize the fact a statistical model current operation financial performance is developed without calculating the value of any of the items (aka assets). As noted below, this change would destroy the ability of the Sandretto invention to complete its intended function. Affects claim 85.

Error #26) A second principle of operation that Sandretto relies on is that: the financial performance of each asset of a portfolio or firm is a known function of a plurality of economic variables that are incorporated in pre-defined models that Sandretto relies on (see Sandretto, abstract and Column 9, Line 20 through Line 25). This principle of operation would have to be changed to replicate the functionality of the claimed invention that teaches and relies on the principle that the impact of an element of value on a firm's current operation is unknown and must be discovered by modeling. The Appellant notes that this modification requires the Sandretto invention to use an approach (see Table below) that is exactly opposite of the one it relies on and destroy its ability to function.

	Sandretto	09/761,670
Known parameter(s)	Asset financial performance as a function of economic variables	Discount rate
Unknown parameter(s)	Discount rate	Element of value impact on current operation financial performance

Error #27) A third principle of operation that Sandretto relies on is the use of predefined risk return models. This principle of operation would have to be changed to replicate the functionality of the



claimed invention in order to develop a statistical model of current operation financial performance that is not a risk return model. As noted below, this change would destroy the ability of the Sandretto invention to complete its intended function. Affects claim 85.

Error #28) A fourth principle of operation that Sandretto relies on is that the financial performance of each firm or asset in a portfolio is independent of the performance of the other firms or assets in the portfolio (see Sandretto, Column 17, Line 43 through 51). This principle of operation would have to be changed to replicate the functionality of the claimed invention that teaches and relies on the principle that the elements of value may have an indirect effect on the performance of other elements of value and/or current operation financial performance. Affects claim 85.

Because the required modifications of the Sandretto invention would change several of its principles of operation, the prima facie case of obviousness cannot be properly made.

Error 29 - It is well established that *when a modification of a reference destroys the intent, purpose or function of an invention such a proposed modification is not proper and the prima facie cause of obviousness cannot be properly made (In re Gordon 733 F.2d 900, 221 U.S.P.Q 1125 Fed Circuit 1984)*. Errors in the claims rejections caused by the failure to acknowledge that the functionality of the Sandretto invention would be destroyed if it was modified to replicate the functionality of the claimed invention, include:

Error #29) The function of the Sandretto invention is estimate the risk and NPV of efficiently priced assets (Sandretto, Column 3, Lines 29 - 31, Column 8, Lines 52 - 53). To complete this task, Sandretto relies on the assumption that the cash flows for these assets are a function of a known set of economic conditions (i.e. industrial production, see Sandretto, Column 37, lines 40 – 50). The cash flows from each independent asset are input to a predefined risk return model. The risk return models for all assets are then iterated in order to determine beta (a risk measure) and the NPV for each asset (see Sandretto, abstract and Column 17, Line 5 through Line 45) by back-fitting the value of all assets to a known portfolio value.

The Examiner has proposed modifying Sandretto to render obvious an invention that transforms data into a statistical model of current operation financial performance. Modifying Sandretto to replicate the functionality of the claimed invention by changing several of its principles of operation (see error 24, error 25, error 26 and error 27) would destroy its ability to complete its intended function in a number of ways. For example, the claimed statistical model is only able to identify relative contributions to current operation financial performance instead of the actual values the Sandretto invention requires. The claimed statistical model also does not identify



any of the required risk measures for any of the elements of value. Furthermore, modifying the Sandretto invention to incorporate the indirect effects of each asset on other assets and/or on portfolio value would destroy the ability of the iterative process Sandretto relies on to converge to a solution.

Because the required modification of the Sandretto invention would destroy its intended function and purpose, the prima facie case of obviousness cannot be properly made.

**Errors 30 through 32** – The claim rejections are based on 35 U.S.C. §103(a) which states: *A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title [35 USC 102], if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.* Errors in the claim rejections caused by the apparent failure to meet any of the statutory requirements for claim rejection include:

Error #30) Is a failure to acknowledge the fact that the cited documents fail to teach or suggest the subject matter as whole. As illustrated by the preceding discussion, the obviousness rejections appear to be based of a non-existent standard for obviousness “mentions the same word as another document” instead of “teaches or suggests the subject matter as a whole” as there is no aspect of the rejected claims that is taught or suggested by the cited documents. It is also well established that the “*Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art.*” *In re Lowry*, 32 F.3d 1579, 1582 (Fed. Cir. 1994). As detailed under errors 1 through 28, it does not appear that any of the claim limitations were actually considered. Affects all claims.

Error #31) Is a failure to acknowledge the fact that the claim rejections have been authored by an individual(s) who appears to lack the level of skill in the art required to author such rejections. It is well established that the “*hypothetical ‘person having ordinary skill in the art’ to which the claimed subject matter pertains would, of necessity have the capability of understanding the scientific and engineering principles applicable to the pertinent art*” *Ex parte Hiyamizu*, 10 USPQ2d 1393, 1394 (Bd. Pat. App. & Inter. 1988). It is unlikely that anyone who understood the scientific and engineering principles applicable to the pertinent art would ever suggest Sandretto as a reference in support of an obviousness rejection for the claimed inventions for the reasons described previously under errors 1 through 29. Affects all claims.

Error #32) Failure to acknowledge the fact that the claim rejections are based on apparent



misrepresentations regarding the teachings of the cited documents. This apparent misrepresentation may be a product of the fact that the Examiner does not appear to have the requisite level of skill in the relevant arts (see Error #30). Affects all claims.

**Error 33** – The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting In re Kahn 41 stated that “[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness (KSR, 550 U.S. at 1, 82 USPQ2d at 1396).” In spite of this well known requirement, the Examiner has not provided the required explanation. In particular, the Examiner has not explained what would motivate someone of average skill in the art to destroy the functionality of the Sandretto invention and modify its principles of operation as discussed under errors 25 through 29. This explanation is particularly important when one considers that Sandretto teaches away from all claimed methods and/or fails to teach or suggest almost every claim limitation as discussed under error 1, error 2, error 3, error 4, error 5, error 6, error 7, error 8, error 9, error 10, error 11, error 12 error 13, error 14, error 15, error 16, error 17, error 18, error 19, error 20, error 21, error 22, error 23 and error 24. In place of an explanation with articulated reasoning and a rational underpinning the Examiner has reached a conclusion of obviousness on the basis of several dozen errors in the facts and the law. This includes the errors in the law identified under error 30, error 31 and error 32. Because no rational underpinning has been provided to support the legal conclusion of obviousness, the prima facie case of obviousness cannot be properly established.

**Errors 34 and 35** – In Dickinson v. Zurko, 119 S. Ct. 1816, 50 USPQ2d 1930 (1999), the Supreme Court held that the appropriate standard of review of U.S.P.T.O. findings are the standards set forth in the Administrative Procedure Act (“APA”) at 5 U.S.C. 706 (1994). The APA provides two standards for review – an arbitrary and capricious standard and a substantial evidence standard. Errors in the claim rejections caused by the apparent failure to meet any of the requirements of the APA include:

**Error #34)** Failure to acknowledge the fact that the claim rejections fail under the substantial evidence standard. Errors 1 through 33 clearly show that the relevant Office Action fails to provide even a scintilla of evidence to support the obviousness rejections of claim 85 and that as a result, the rejections fail to meet the substantial evidence standard.

**Error #35)** Failure to acknowledge the fact that the claim rejections fail under the arbitrary and capricious standard. The Appellant respectfully submits that the obviousness rejection of claim 85 also fails to pass the arbitrary and capricious test for a number of reasons including the fact



that:

- a) as detailed above, the references cited by the Examiner provide substantial evidence of novelty, non-obviousness and newness of the rejected claims (see errors 1 through 29);
- b) there is no rational connection between the statutory requirements for an obviousness rejection, the agency fact findings and the rejection of the claims (see errors 30 through 32),
- c) no rational underpinning has been provided to support the legal conclusion of obviousness (see error 33), and
- d) prior agency fact-findings have shown that 35 U.S.C. 103 requirements for non-obviousness are apparently not always considered during the prosecution and allowance of large company patent applications (i.e. Tulsie). This apparently unequal application of the law comprises an apparent violation of 35 USC 3.

Because the claim rejections do not meet either standard of the APA, the prima facie case of obviousness cannot be properly established.

Summarizing the preceding discussion, the Examiner has based the claim rejections under this issue on thirty five (35) errors in the facts and the law. The Appellant respectfully submits that because of these errors the Examiner has failed to produce the evidence required to satisfy the requirements of the APA and/or establish a prima facie case of obviousness for a single claim. These failures provide additional evidence that the claimed invention is new, novel and non-obvious.

**Issue 3 - Whether claim 86 is patentable under 35 U.S.C. 103(a) over Sandretto (U.S. Patent 5,812,988) in view of Barr (U.S. Patent 5,761,442)?**

The claims are patentable because the claim rejections are based on a number of errors in the facts and in the law. Because of these errors, the cited documents (Sandretto and Barr) and the arguments related to the cited documents fail to establish a prima facie case of obviousness for every rejected claim as detailed below.

**Errors 1 through 13** – Errors in the claim rejections caused by the apparent failure to acknowledge the fact that the cited references teach away from the invention described in claim 86 include, error 1, error 2, error 3, error 4, error 5, error 6, error 7, error 8, error 9 and error 10 identified under Issue 2. Additional errors include:

**Error #11)** Is a failure to acknowledge the fact that Barr teaches away from the claimed role of genetic algorithms. Barr teaches away from every aspect of the claimed invention. The claimed invention teaches that genetic algorithms are used to transform data into a statistical model. Barr teaches away by teaching the use of genetic algorithms to identify an optimal set of assets



for a portfolio (see Barr, column 13, lines 19 through 45). By exclusively teaching methods that teach away from the claimed invention, Barr provides additional evidence of the novelty, non-obviousness and newness of claim 86 (and claim 85).

Error #12) Is a failure to acknowledge the fact that Barr teaches away from the claimed role of elements of value. Barr teaches away from every aspect of the claimed invention. The claimed invention teaches that element of value performance drives current operation financial performance. One way Barr teaches away from the claimed role of the elements of value is by teaching that business market value is driven by technical factors, current stock price, volume traded per day, etc., market returns and fundamental factors, historical earnings, forecast earnings, etc. (see Barr, FIG. 2) - instead of elements of value. Another way Barr teaches away from the claimed role of the elements of value is by teaching that value is optimized by changing the set of assets held in a portfolio (see Barr, column 13, lines 19 through 45). By way of contrast, the claimed invention teaches and relies on a model of current operation financial performance where the elements of value cannot be bought or sold. By exclusively teaching methods that teach away from the claimed invention, Barr provides additional evidence of the novelty, non-obviousness and newness of claim 86 (and claim 85).

Error #13) A failure to acknowledge that Barr teaches away from the claimed market efficiency assumptions. Barr teaches away from every aspect of the claimed invention. Claim 86 describe a model development method that does not rely on any assumptions about market efficiency. Barr teaches away by teaching an analysis method that relies on the now discredited capital asset pricing model and the efficient market hypothesis (see Barr, Column 7, Line 2). By exclusively teaching methods that teach away from the claimed invention, Barr provides additional evidence of the novelty, non-obviousness and newness of claim 86 (and claim 85).

Errors 14 through 23 - Errors in the claim rejections caused by the apparent failure to acknowledge the fact that the cited documents (Sandretto and Barr) do not teach one or more limitations of the claimed invention include:

Error #14 through #23) Failure to acknowledge the fact that the cited documents do not teach or suggest one or more limitation of claim 86, including:

- a) identifying a set of data required for analyzing a commercial enterprise (#14),*
- b) preparing the identified set of data for use in analysis (#15),*
- c) analyzing at least a portion of said data in an automated fashion as required to identify one or more statistics selected from the group consisting of pattern, trend, ratio, average, elapsed time period, percentage, variance, monthly total and combinations thereof (#16),*



- d) using at least a portion of said statistics and data to develop a model of enterprise current operation financial performance using automated learning (#17),*
- e) where the model mathematically expresses the dynamic characteristics and behavior of one or more elements of value as including direct effects and indirect effects from each element of value (#18),*
- f) the method a through e wherein the method further comprises using a plurality of genetic algorithms to automatically learn from the data by using fitness measure rescaling (#19),*
- g) the method a through e wherein the method further comprises using a plurality of genetic algorithms to automatically learn from the data by using random mutation (#20),*
- h) the method a through e wherein the method further comprises using a plurality of genetic algorithms to automatically learn from the data by recalibrating target fitness levels (#21),*
- i) the method a through e wherein the method further comprises using a plurality of genetic algorithms to automatically learn from the data by using selective crossover (#22), and*
- j) the method a through e wherein the method further comprises using a plurality of genetic algorithms to automatically learn from the data by using selective carry-forward (#23).*

**Errors 24 through 27** – Errors in the claim rejections caused by the apparent failure to acknowledge the fact that changes in the principles of operation of Sandretto will be required to replicate the invention described in claim 86 include error 24, error 25, error 26 and error 27 identified under Issue 2. Because the required modifications of the Sandretto invention would change several of its principles of operation, the prima facie case of obviousness cannot be properly made.

**Errors 28 through 31** – Errors in the claim rejections caused by the apparent failure to acknowledge the fact that changes in the principles of operation of Barr will be required to replicate the invention described in claim 86, include:

**Error #28)** One principle of operation that Barr relies on is that technical factors, fundamental factors and market returns drive business value (see Barr, FIG. 2). This principle of operation would have to be changed to recognize that element of value performance drives current operation financial performance and business value in order to replicate the functionality of the claimed invention.

**Error #29)** A second, principle of operation that Barr relies on is the analysis of input variables (see Barr, FIG. 3). This principle of operation would have to be changed to replicate the functionality of the claimed invention that analyzes statistics developed from the analysis of input variables.

**Error #30)** A third, principle of operation that Barr relies on is the now discredited capital asset



pricing model and the related efficient market hypothesis. This principle of operation would have to be changed to replicate the functionality of the claimed invention that does not rely on any assumptions regarding market efficiency.

Error #31) A fourth, principle of operation that Barr relies on is that genetic algorithms are exclusively used to identify which assets to add or subtract from a portfolio. This principle of operation would have to be changed to replicate the functionality of the claimed invention that uses genetic algorithms to develop a model that incorporates elements of value that generally cannot be bought or sold.

Because the required modifications of the Barr invention would change several of its principles of operation, the prima facie case of obviousness cannot be properly made.

**Error 32** – Errors in the claim rejections caused by the apparent failure to acknowledge the fact that the changes in the Sandretto invention required to replicate the functionality of the invention described in claim 86 will destroy the ability of the Sandretto invention to perform its intended functions include error 28 identified under Issue 2. The changes in Barr's principle of operation described under errors 28 through 31 would also destroy the ability of the Barr invention to perform its intended function.

**Errors 33 through 35** – The claim rejections are based on 35 U.S.C. §103(a) which states: *A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title [35 USC 102], if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.* Errors in the claim rejections caused by the apparent failure to meet any of the statutory requirements for claim rejection include:

Error #33) Is a failure to acknowledge the fact that the cited documents fail to teach or suggest the subject matter as whole. As illustrated by the preceding discussion, the obviousness rejections appear to be based of a non-existent standard for obviousness “mentions the same word as another document” instead of “teaches or suggests the subject matter as a whole” as there is no aspect of the rejected claims that is taught or suggested by the cited documents. It is also well established that the “*Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art.*” *In re Lowry*, 32 F.3d 1579, 1582 (Fed. Cir. 1994). As detailed under errors 1 through 32, it does not appear that any



of the claim limitations were actually considered. Affects all claims.

Error #34) Is a failure to acknowledge the fact that the claim rejections have been authored by an individual(s) who appears to lack the level of skill in the art required to author such rejections. It is well established that the *"hypothetical 'person having ordinary skill in the art' to which the claimed subject matter pertains would, of necessity have the capability of understanding the scientific and engineering principles applicable to the pertinent art"* *Ex parte Hiyamizu*, 10 USPQ2d 1393, 1394 (Bd. Pat. App. & Inter. 1988). It is unlikely that anyone who understood the scientific and engineering principles applicable to the pertinent art would ever suggest Sandretto or Barr as a reference in support of an obviousness rejection for the claimed inventions for the reasons described previously under errors 1 through 33. Affects all claims.

Error #35) Failure to acknowledge the fact that the claim rejections are based on apparent misrepresentations regarding the teachings of the cited documents. This apparent misrepresentation may be a product of the fact that the Examiner does not appear to have the requisite level of skill in the relevant arts (see Error #34). Affects all claims.

**Error 36** – The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting *In re Kahn* 41 stated that "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness (KSR, 550 U.S. at 1, 82 USPQ2d at 1396)." In spite of this well know requirement, the Examiner has not provided the required explanation. In particular, the Examiner has not explained what would motivate someone of average skill in the art to destroy the functionality of both the Sandretto and Barr inventions and/or modify their principles of operation as discussed under errors 24 through 32. This explanation is particularly important when one considers that Sandretto and Barr teach away from all claimed methods and/or fails to teach or suggest almost every claim limitation as discussed under error 1, error 2, error 3, error 4, error 5, error 6, error 7, error 8, error 9, error 10, error 11, error 12 error 13, error 14, error 15, error 16, error 17, error 18, error 19, error 20, error 21, error 22 and error 23. In place of an explanation with articulated reasoning and a rational underpinning the Examiner has reached a conclusion of obviousness on the basis of several dozen errors in the facts and the law. This includes the errors in the law identified under error 33, error 34 and error 35. Because no rational underpinning has been provided to support the legal conclusion of obviousness, the prima facie case of obviousness cannot be properly established.

**Errors 37 and 38** – In *Dickinson v. Zurko*, 119 S. Ct. 1816, 50 USPQ2d 1930 (1999), the Supreme Court held that the appropriate standard of review of U.S.P.T.O. findings are the



standards set forth in the Administrative Procedure Act ("APA") at 5 U.S.C. 706 (1994). The APA provides two standards for review – an arbitrary and capricious standard and a substantial evidence standard. Errors in the claim rejections caused by the apparent failure to meet any of the requirements of the APA include:

Error #37) Failure to acknowledge the fact that the claim rejections fail under the substantial evidence standard. Errors 1 through 36 clearly show that the relevant Office Action fails to provide even a scintilla of evidence to support the obviousness rejections of claim 86 and that as a result, the rejections fail to meet the substantial evidence standard.

Error #38) Failure to acknowledge the fact that the claim rejections fail under the arbitrary and capricious standard. The Appellant respectfully submits that the obviousness rejection of claim 86 also fails to pass the arbitrary and capricious test for a number of reasons including the fact that:

- a) as detailed above, the references cited by the Examiner provide substantial evidence of novelty, non-obviousness and newness of the rejected claims (see errors 1 through 32);
- b) there is no rational connection between the statutory requirements for an obviousness rejection, the agency fact findings and the rejection of the claims (see errors 33 through 35),
- c) no rational underpinning has been provided to support the legal conclusion of obviousness (see error 36), and
- d) prior agency fact-findings have shown that 35 U.S.C. 103 requirements for non-obviousness are apparently not always considered during the prosecution and allowance of large company patent applications (i.e. Tulsie). This apparently unequal application of the law comprises an apparent violation of 35 USC 3.

Because the claim rejections do not meet either standard of the APA, the prima facie case of obviousness cannot be properly established.

Summarizing the preceding discussion, the Examiner has based the claim rejections under this issue on thirty eight (38) errors in the facts and the law. The Appellant respectfully submits that because of these errors the Examiner has failed to produce the evidence required to satisfy the requirements of the APA and/or establish a prima facie case of obviousness for a single claim. These failures provide additional evidence that the claimed invention is new, novel and non-obvious.

#### **Issue 4 - Whether claim 85 and claim 86 are enabled under 35 U.S.C. 112, first paragraph?**

The claims are patentable because the claim rejections are based on a number of errors in the



facts and in the law. Because of these errors, the arguments presented by the Examiner fail to establish a prima facie case of a lack of enablement for every rejected claim as detailed below.

**Errors 1 through 5** – It is well established that *“a description as filed is presumed to be adequate; unless or until sufficient evidence or reasoning to the contrary has been presented by the examiner to rebut the presumption. See, e.g., In re Marzocchi, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). The examiner, therefore, must have a reasonable basis to challenge the adequacy of the written description. The examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicant’s disclosure a description of the invention defined by the claims. Wertheim, 541 F.2d at 263, 191 USPQ at 97. In rejecting a claim, the examiner must set forth express findings of fact regarding the above analysis which support the lack of written description conclusion. These findings should: (A) Identify the claim limitation at issue; and (B) Establish a prima facie case by providing reasons why a person skilled in the art at the time the application was filed would not have recognized that the inventor was in possession of the invention as claimed in view of the disclosure of the application as filed. A general allegation of “unpredictability in the art” is not a sufficient reason to support a rejection for lack of adequate written description.” Furthermore, it is well established that “the test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.” United States v. Teletronics, Inc., 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988). This has been the primary test of enablement since 1916 (see Mineral Separation v. Hyde, 242 U.S. 261, 270 (1916)). The determination that “undue experimentation” would have been needed to make and use the claimed invention is not a single, simple factual determination (In re Wands, 858 F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988)). Factors which need to be considered include: the nature of the invention, the state of the prior art, the predictability or lack thereof in the art, the amount of direction or guidance present, the presence or absence of working examples, the breadth of the claims, the relative skill of those in the art and the quantity of experimentation needed (hereinafter referred to as the Wands factors). A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors (the Wands factors), the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation (In re Wright, 999 F.2d 1557,1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)). Errors in the claim rejections regarding an alleged lack of enablement include:*

**Error #1)** – Is a failure to acknowledge that no evidence has been presented to support the



rejection of any claims for a lack of enablement. As noted above, rejection under §112 first paragraph requires a preponderance of evidence and express findings of fact. In spite of this well known requirement, no facts have been identified and no evidence has been presented that excessive experimentation would be required and/or that the full scope of the claimed invention has not been described. In place of the required evidence, the Examiner has made conclusory statements that the description in the specification requires subjective judgments to be implemented. However, the subjective judgments that allegedly need to be made have not been identified. Affects claim 85 and claim 86.

Error #2) Is a failure to acknowledge that the conclusory statement about the subjectivity of the model development process is incorrect. The specification describes a process for developing a statistical model of current operation financial performance that relies on a model development technique that has been identified as the “best” method for developing robust models in an automated fashion (see Evidence Appendix, page 42). It is well established that “*the enablement requirement is met if the description enables any mode of making and using the claimed invention*” (see *Invitrogen Corp. v. Clontech Labs, Inc.*, 429 F.3d 1052, 1058 (Fed. Cir. 2005) where the Court referenced *Engel Industries, Inc. v. Lockformer Co.* 946 F.2d 1528 (Fed. Cir. 1991)). Affects claim 85 and claim 86.

Error #3) Is a failure to acknowledge that no claim limitation(s) at issue have been identified. The Examiner has expressed vague concerns regarding the specification but no specific claim limitations have been identified as being at issue. Affects claim 85 and claim 86.

Error #4) - Is a failure to acknowledge that the Wands factors have not been considered. As noted above, rejection under §112 first paragraph requires a consideration of the Wands factors. In spite of this well known requirement, the Examiner has not completed a single aspect of the required Wands factor analysis. Affects claim 85 and claim 86.

Error #5) Is an apparent failure to consider the evidence that has been presented. Evidence that the Examiner has apparently ignored includes: a) the summary of claimed subject matter and b) a declaration submitted in support of this application, the declaration represents the only known independent review of the patent specification by someone with average skill in the relevant arts under either the pre or post KSR standards for determining the possession of said level of skill. Although the expert providing the declaration has considerable expertise in the mathematical modeling, the Examiner has apparently chosen to ignore the contents of this declaration which completely rebuts the stated basis for the claim rejections (see Evidence Appendix, pages 35 – 37). Affects claim 85 and claim 86.



Since the prima facie case to support the claim rejections has not been established, no rebuttal was (or is) required.

**Error 6** - Is a failure to acknowledge that *“there is no requirement that the words in the claim must match those used in the specification disclosure,”* and that the use of words in a claim that do not match those used in the specification does not comprise the incorporation of new matter (see *In re Robert Skvorecz*, CAFC 2008-1221). Affects claim 85 and claim 86.

**Errors 7 through 9** – The claim rejections are based on 35 U.S.C. §112 first paragraph which states: *The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.* Errors in the claim rejections caused by the apparent failure to meet any of the statutory requirements for an enablement rejection include:

**Error #7)** Failure to acknowledge the fact that the specification meets the requirements of 35 U.S.C. §112 first paragraph. As illustrated by the preceding discussion of errors 1 through 7, the enablement rejection appears to be based of a non-existent standard for written description enablement. Affects claim 85 and claim 86.

**Error #8)** Failure to acknowledge the fact that the claim rejections have been authored by individuals who appear to lack the level of skill in the art required to author such rejections. It is well established that the *“hypothetical ‘person having ordinary skill in the art’ to which the claimed subject matter pertains would, of necessity have the capability of understanding the scientific and engineering principles applicable to the pertinent art”* *Ex parte Hiyamizu*, 10 USPQ2d 1393, 1394 (Bd. Pat. App. & Inter. 1988). It is unlikely that anyone who understood the scientific and engineering principles applicable to the pertinent art would ever suggest Sandretto or Barr as a reference in support of a rejection for the claimed inventions for the reasons described previously. The conclusory statement that the claimed process is subjective is another indication that the individuals who authored and/or approved the relevant Office Action do not appear to understand the scientific and engineering principles associated with the pertinent arts. Affects claim 85 and claim 86.

**Error #9)** – Is a failure to acknowledge that the claim rejections for an alleged lack of enablement are non statutory. The instant application incorporated a patent by reference that described a method for data analysis. If any deficiencies in the written description were actually



identified, the proper response in accordance with 37 CFR 1.57 would be to note that material from the cross referenced patent shall be considered incorporated by reference as to the inadvertently omitted portion of the specification or drawing(s) instead of issuing an arbitrary and capricious rejection for a lack of enablement. Please see MPEP 608.01(p) and MPEP 2163.07(b) for details re: U.S.P.T.O. policy in this regard. Affects claim 85 and claim 86.

**Errors 10 and 11** – In *Dickinson v. Zurko*, 119 S. Ct. 1816, 50 USPQ2d 1930 (1999), the Supreme Court held that the appropriate standard of review of U.S.P.T.O. findings are the standards set forth in the Administrative Procedure Act (“APA”) at 5 U.S.C. 706 (1994). The APA provides two standards for review – an arbitrary and capricious standard and a substantial evidence standard. Errors in the claim rejections caused by the apparent failure to meet any of the requirements of the APA include:

**Error #10)** Failure to acknowledge the fact that the claim rejections fail under the substantial evidence standard. Errors 1 through 9 clearly show that the relevant Office Action fails to provide even a scintilla of evidence to support the lack of enablement rejections of claim 85 and claim 86 and that as a result the rejections fail to meet the substantial evidence standard.

**Error #11)** Failure to acknowledge the fact that the claim rejections fail under the arbitrary and capricious standard. The Appellant respectfully submits that the enablement rejection of claim 85 and claim 86 also fails to pass the arbitrary and capricious test for a number of reasons including the fact that:

- a) as detailed above under errors 1 through 6, there is no evidence to support the rejection of a single claim;
- b) there is no rational connection between the statutory requirements for enablement, the agency fact findings and the rejection of the claims (see errors 7 through 9),
- c) there is no rational connection between the claim rejections under this Issue and the prior agency fact findings regarding U.S. Patent 7,251,582, and
- d) prior agency fact-findings have shown that 35 U.S.C. 112 first paragraph requirements for enablement are apparently not always considered during the prosecution and allowance of large company patent applications (i.e. Tulske and Evidence Appendix, page 45). This apparently unequal application of the law comprises an arbitrary and capricious violation of 35 USC 3.

As detailed above, the Examiner has based the claim rejections under this issue on 11 errors in the facts and the law. When the 11 errors are multiplied by the number of claim rejections affected by each error, the total number of errors associated with the rejection of claims under Issue 4 is



twenty two (22). Because of these errors, the claim rejections do not meet either standard of the APA and the prima facie case of a lack of enablement cannot be properly established.

Summarizing the preceding discussion, the Appellant respectfully submits that the Examiner has failed to produce the evidence required to satisfy the requirements of the APA and/or establish a prima facie case of a lack of enablement for a single claim.

**Issue 5 - Whether claim 85 and/or claim 86 are indefinite under 35 U.S.C. 112, second paragraph?**

The claims are patentable because the claim rejections are based on a number of errors in the facts and in the law. Because of these errors, the arguments presented by the Examiner fail to establish a prima facie case of claim indefiniteness for every rejected claim as detailed below.

**Errors 1 through 5** – It is well established that: *the definiteness of claim language must be analyzed, not in a vacuum, but in light of: (A) The content of the particular application disclosure; (B) The teachings of the prior art; and (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made. In reviewing a claim for compliance with 35 U.S.C. 112, second paragraph, the examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. 112, second paragraph, by providing clear warning to others as to what constitutes infringement of the patent. See, e.g., Solomon v. Kimberly-Clark Corp., 216 F.3d 1372, 1379, 55 USPQ2d 1279, 1283 (Fed. Cir. 2000). See also In re Larsen, No. 01-1092 (Fed. Cir. May 9, 2001).* Errors in the claim rejections caused by the apparent failure to establish a prima facie case of claim indefiniteness include:

**Error #1)** – Is a failure to acknowledge that no evidence has been provided to indicate that the rejected claims do not *particularly point out or distinctly claim the disclosed invention to someone of average skill in the art.* In particular, all the claim rejections are based on conclusory statements. Affects claim 85 and claim 86.

**Error #2)** - Is a failure to acknowledge that *“there is no requirement that the words in the claim must match those used in the specification disclosure”* and that the use of words in a claim that do not match those used in the specification does not comprise the incorporation of new matter (see *In re Robert Skvorecz, CAFC 2008-1221*). Affects claim 85 and claim 86.

**Error #3)** - Is a failure to acknowledge that virtually all of the terms used in the rejected claims have well recognized meanings which allows the reader to infer the meaning of the entire claim



with reasonable confidence (see *Bancorp Services, L.L.C. v. Hartford Life Ins. Co.*, 359 F.3d 1367, 1372, 69 USPQ2d 1996, 1999-2000 (Fed. Cir. 2004)). Affects claim 85 and claim 86.

Error #4) - Is a failure to acknowledge that the rejected claims do not contain any terms that do not have proper antecedent basis where such basis is not otherwise present by implication or the meaning is not reasonably ascertainable (*Halliburton Energy Services, Inc. v. M-I LLC*, 514 F.3d 1244, 1255, 85 USPQ2d 1663 (Fed. Cir. 2008) and *Halliburton*, 514 F.3d at 1246, 85 USPQ2d at 1658 (Citing *Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007)). In particular:

a) the conclusory statement about “subjective development” is incorrect. The specification describes a process for developing a statistical model where the portion of data transformed into the model is clearly identified (see Evidence Appendix, pages 35 through 37). Furthermore, the specification as filed contained a claim under § 1.78 for the benefit of U.S. Patent 5,615,109 which can also be used to provide supporting material if any deficiency was actually discovered.

By providing a clear, well documented process that highlights the relevant principles, the specification provides an objective standard for determining the scope of the claimed invention (see *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1356. (Fed. Cir. 2005)). Evidence to support these assertions can be found in declaration included in the Evidence Appendix. This declaration represents the only known independent review of the instant patent specification and claims by an individual with average skill in the relevant arts under either the pre or post KSR standards for determining the possession of said level of skill. It completely rebuts the Examiner’s contentions regarding the claims (see Evidence Appendix, pages 35 through 37). Affects claim 85 and claim 86.

Error #5) – Is a failure to acknowledge that the Examiner has failed to establish a prima facie case of indefiniteness by failing to consider the rejected claims as a whole. The claim rejections all rely on conclusory statements regarding a portion of a claim. The complete claims provide additional context that helps define the metes and bounds of the claimed invention. Affects claim 85 and claim 86.

Errors 6 through 8 – The claim rejections are based on 35 U.S.C. §112 second paragraph which states: *The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.* Errors in the claim rejections caused by the apparent failure to meet any of the statutory requirements for an indefinite claim rejection include:



Error #6) Failure to acknowledge the fact that the rejected claims meet the requirements of 35 U.S.C. §112 second paragraph. As illustrated by the preceding discussion of errors 1 through 5, the indefinite claim rejections appear to be based on an unknown and non-existent standard for claim definiteness. Affects claim 85 and claim 86.

Error #7) Failure to acknowledge the fact that the claim rejections have been authored and/or approved by individuals who does not appear to have the level of skill in the art required to author valid claim rejections. It is well established that: *the definiteness of claim language must be analyzed, not in a vacuum, but in light of ... The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.* It is also well established that the “hypothetical ‘person having ordinary skill in the art’ to which the claimed subject matter pertains would, of necessity have the capability of understanding the scientific and engineering principles applicable to the pertinent art” *Ex parte Hiyamizu*, 10 USPQ2d 1393, 1394 (Bd. Pat. App. & Inter. 1988). It is unlikely that anyone who understood the scientific and engineering principles applicable to the pertinent art would ever suggest Sandretto or Baur references in support of the rejection for the claimed inventions for the reasons described previously. Another indication of the apparent lack of understanding of the scientific and engineering principles can be found in the related appeals. Affects claim 85 and claim 86.

Error #8) – Is a failure to acknowledge that the alleged indefiniteness of the claims may be a product of the Examiner’s apparent lack of understanding of the relevant rules and statutes. The instant application as filed incorporated a number of applications by reference. In accordance with 37 CFR 1.57, the proper response to the identification of an allegedly unsupported claim limitation would be to first require that pertinent material from the cross referenced patent applications be added to the specification instead of issuing an arbitrary and capricious rejection for indefiniteness. In accordance with 37 CFR 1.57 any such material (if identified) would be automatically be considered incorporated by reference. Affects claim 85 and claim 86.

Errors 9 and 10 – In *Dickinson v. Zurko*, 119 S. Ct. 1816, 50 USPQ2d 1930 (1999), the Supreme Court held that the appropriate standard of review of U.S.P.T.O. findings are the standards set forth in the Administrative Procedure Act (“APA”) at 5 U.S.C. 706 (1994). The APA provides two standards for review – an arbitrary and capricious standard and a substantial evidence standard. Errors in the claim rejections caused by the apparent failure to meet any of the requirements of the APA include:



Error #9) A failure to acknowledge the fact that the claim rejections fail under the substantial evidence standard. Errors 1 through 8 clearly show that the relevant Office Action fails to provide even a scintilla of evidence to support the rejections for indefiniteness of claim 85 and claim 86 and that as a result the rejections fail to meet the substantial evidence standard.

Error #10) Failure to acknowledge the fact that all the claim rejections fail under the arbitrary and capricious standard. The Appellant respectfully submits that the rejection of claim 85 and claim 86 for indefiniteness also fails to pass the arbitrary and capricious test for a number of reasons including the fact that:

- a) as detailed under errors 1 through 5, there is no evidence that the claims are indefinite;
- b) as detailed under errors 6 through 8 there is no rational connection between the statutory requirements for claim definiteness, the agency fact findings and the rejection of the claims,
- c) there is no rational connection between the rejection for claim indefiniteness and the prior agency fact findings associated with U.S. Patent 7,251,582, and
- d) prior agency fact-findings have shown that 35 U.S.C. 112 requirements for written description are apparently not always considered during the prosecution and allowance of large company patent applications (i.e. Tulske and Evidence Appendix, page 45). This apparently unequal application of the law comprises an arbitrary and capricious violation of 35 USC 3.

As detailed above, the Examiner has based the claim rejections under this issue on ten errors in the facts and the law. When the ten (10) errors are multiplied by the number of claim rejections affected by each error, the total number of errors associated with the rejection of claims under Issue 5 is twenty (20). Because of these errors, the claim rejections do not meet either standard of the APA and the prima facie case cannot be properly established.

Summarizing the above, the Appellant respectfully submits that the Examiner has failed to produce the evidence required to satisfy the requirements of the APA and/or establish a prima facie case that a single claim is indefinite.

#### **Issue 6 – Informality not identified by the Examiner.**

The phrase “where the model mathematically expresses the dynamic characteristics and behavior of each element of value as including direct effects and indirect effects from each element of value” in claim 85 should be changed to “where the model mathematically expresses the dynamic characteristics and behavior of one or more elements of value as including direct effects and indirect effects from each element of value”.



## 8. Conclusion

The Appellant notes that with respect to the prosecution of the instant application, it appears that the U.S.P.T.O. has not fully complied with the requirements set forth in the APA, 35 U.S.C. 3, 35 U.S.C. 131, 37 CFR 1.97 and 37 CFR 1.98. It is well established that a valid patent application rejection requires substantial evidence (Gartside, 203 F.3d at 1312). As described in the preceding section, the November 12, 2008 Office Action does not contain any evidence that would support the rejection of a single claim. However, related appeals and the November 12, 2008 Office Action for the instant application does provide substantial evidence that: those authoring/signing the Office Action do not appear to understand any of the scientific and/or engineering principles applicable to the pertinent art. Furthermore, those authoring the Office Action do not appear to adhere to any of the well established statutory requirements for authoring valid claim rejections and those authoring the relevant Office Action appear to have based the claim rejections on the application legal standards that are not applied during the review and allowance of similar applications filed by larger companies.

For the reasons detailed above, the Appellant respectfully but forcefully contends that each claim is patentable. Therefore, reversal of all rejections is courteously solicited.

Respectfully submitted,  
Asset Trust, Inc.

/B.J. Bennett/

B.J. Bennett, President,  
Dated: January 2, 2009



## 9. Claims Appendix

85. An intelligent method for analyzing commerce data using a computer, comprising:
- identifying a set of data required for analyzing a commercial enterprise,
  - preparing the identified set of data for use in analysis,
  - analyzing at least a portion of said data in an automated fashion as required to identify one or more statistics selected from the group consisting of pattern, trend, ratio, average, elapsed time period, percentage, variance, monthly total and combinations thereof, and
  - using at least a portion of said statistics and data to develop a model of enterprise current operation financial performance using automated learning
- where the model mathematically expresses the dynamic characteristics and behavior of each element of value as including direct effects and indirect effects from each element of value.
86. The method of claim 85 wherein the method further comprises using a plurality of genetic algorithms to automatically learn from the data by using processing steps selected from the group consisting of fitness measure re-scaling, random mutation, recalibrating target fitness levels, selective crossover, selective carry-forward and combinations thereof.



## 10. Evidence Appendix

Pages 35 – 37	declaration under rule 132, received September 10, 2006
Page 38	excerpt from Office Action mailed May 9, 2006
Pages 39 - 40	excerpt from Office Action mailed January 3, 2007
Page 41	excerpt from Examiner's Answer mailed January 9, 2008
Page 42	excerpt from reference received March 10, 2008
Page 43	excerpt from Supplemental Amendment received January 31, 2006
Page 44	excerpt from reference reviewed September 30, 2005
Page 45	excerpts from reference reviewed April 14, 2006



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

App. No. : 09/761,670

Applicant : Jeff S. Eder

Filed : January 16, 2001

Art Unit : 3528

Examiner : Siegfried Chencinski

Docket No. : AR - 16

Customer No. : 53787

DECLARATION UNDER RULE 132

I, Rick Ralenzahn, do hereby declare and say,

My home address is 4029 Calle don Leandro, Espanola, New Mexico 87532; I have a B.S. degree in chemical engineering from Lehigh University, an S.M. degree in chemical engineering from The Massachusetts Institute of Technology and a Ph.D. in chemical engineering from The Massachusetts Institute of Technology;

I have worked in the mathematical modeling field for 25 years, concentrating in the disciplines of fluid mechanics, turbulence modeling, numerical methods for partial differential equations, radiation hydrodynamics, and strength of materials. I also have extensive knowledge of computer system administration, particularly for Windows-based, Linux, and Unix systems; I have been employed by Los Alamos National Laboratory and Mollen Metal Technologies for the past 23



years

I further declare that I do not have any direct affiliation with the application owner, Asset Reliance, Inc. I met the inventor for the first time in April 2006. While I joined the Technical Advisory Board for Knacta, Inc., a company run by the inventor in May of 2006, I have not attended a meeting or completed any assignments for the Technical Advisory Board as of the date of this declaration. I have never discussed this patent application or any of the other patent applications owned by Asset Reliance with the inventor or anyone else. Knacta, Inc. has a license to the intellectual property associated with this application.

On August 2, 2006 I was given a copy of U.S. Patent Application 09/761,670 entitled "A method of and system for evaluating cash flow and elements of a business enterprise" filed in the United States Patent Office on January 18, 2001. Until that time I had not read the patent application. I have studied the entire specification in order to closely analyze the claims and drawings. I am totally familiar with the language of the claims and conversant with the scope thereof. I completely understand the invention as claimed.

Based on my experience and training in the field of mathematical modeling and electronic data processing, I have concluded that it would be straightforward for someone of average skill in the art to duplicate the system for evaluating cash flow and elements of a business enterprise as claimed using the information in U.S. Patent Application 09/761,670 together with the patent it cross-references.

Specifically, U.S. Patent Application 09/761,670 together with the patent it cross-references fully describes

- 1) A framework system (claim 43 and associated claims 44-46 and 48-52);
- 2) A firm analysis method (claim 54 and associated claims 55-56);
- 3) A computer readable media for firm analysis (claim 67 and associated claims 68-79);
- 4) An enterprise data integration method (claim 80 and associated claims 81-



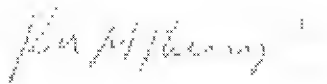
- 84), and
- 5) An intelligent method for analyzing commerce data using a computer (claim 85 and associated claim 86)

Based on these and other considerations, it is my professional opinion that U.S. Patent Application 09/761,670 together with the patent it cross-references would enable someone of average skill in the relevant art to recreate and practice a method of and system for evaluating cash flow and elements of a business enterprise as claimed.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patents issuing thereon.

Signed,

/Rick M. Rauenzahn/



Rick Rauenzahn

Date: September 4, 2006



Art Unit: 3628

1355-59. This requirement is as much rooted in the Administrative Procedure Act, which ensures due process and non-arbitrary decisionmaking, as it is in § 103. See id. at 1344-45." In re Kahn, Slip Op. 04-1616, page 9 (Fed. Cir. Mar. 22, 2006)." (**Bolding added**).

In this case, the examiner made a judgement that the ordinary practitioner of the art, had he or she seen the Sandretto and Jost references at the time of Applicant's invention, would have seen the teachings, suggestions and obviousness of selectively using the disclosures of the two references in order to develop the features and limitations of claims 52, 63 and 76. Sandretto and Jost both present computer automated applications. Modifying the software and even the hardware employed to operate Sandretto's disclosure with additional software and perhaps additional hardware to add the neural networks teaching by Jost is eminently doable in the computer arts. The practitioner would have had the knowledge and skill to achieve the combinations through employment of appropriate hardware and software manipulations. The examiner's judgement is based on the judgement that the ordinary practitioner in this kind of invention is either solely competent in finance and strategic evaluations of the firm and is sufficiently knowledgeable to get the computer implementation done, or is sufficiently competent in working with one or more collaborating practitioners, assistants or a vendor who have the required computer related knowledge and skills. The details of these computer techniques are outside the scope of this examination and are not claimed. The rational underpinning for this judgement is based on the fact that computer systems hardware and software are extremely flexible, unlike many scientific and technical areas of art where that is not the case. For example, an invention employing a gasket with certain required stiffness characteristics to achieve a certain performance quality cannot have prior art applied to it based on a flexible gasket. Many court opinions are based on such specific factual scenarios where the technical facts may have been misunderstood by an examiner. The examiner is not required to give a technical exposition of how the ordinary practitioner would apply his technical know-how regarding computer systems, since this has been classified as a business methods application. Rather, the burden of proof falls on applicant to present a reasonable case to disprove the examiner's judgement. This requirement is supported by the following



**DETAILED ACTION*****Information Disclosure Statement***

1. The information disclosure statement filed September 10, 2006 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609, particularly 1.98 (a)(3)(i) because a concise explanation of the relevance of the items submitted, including the identification of the relevant pages and lines of each IDS document, has not been submitted. The disclosed materials have been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

***Declaration Submitted Under Rule 132***

2. The declaration by Mr. Rick Rauenzahn submitted on September 8, 2006 under Rule 132 has been considered but has been determined to lack relevance because the qualifications submitted by Mr. Rauenzahn do not qualify him as an expert according in the art of financial modeling as required by Rule 132 since Mr. Rauenzahn does not claim to have expertise in any aspect of business and/or financial modeling and because Mr. Rauenzahn's declaration does not make any statements regarding claimed subject matter and/or claimed limitations. Mr. Rauenzahn has claims degrees in chemical engineering at the BS, Masters and PhD levels. Mr. Rauenzahn specifically claims to have experience and expertise in the disciplines of fluid dynamics, turbulence modeling, numerical methods for partial differential equations, radiation hydrodynamics, and strength of materials as an employee of Los Alamos National Laboratory and Molten Metal Technologies for 23 years.



***Response to Arguments***

**21.** Applicant's arguments filed on September 8, 2006 with respect to claims 43-46, 48-52, and 54-86 in regard to the rejections under 35 USC 103(a) have been considered but are moot in view of the new ground(s) of rejection necessitated by Applicant's amendments of claims.

Applicant's arguments filed on September 8, 2006 with respect to claims 43-46, 48-52, and 54-86 in regard to the rejections under 35 USC 112 have been fully considered but they are not persuasive.

**ARGUMENT A:** Traversal of the rejections of claims 43-86 under 35 USC 101 (p. 20, l. 1 – p. 21, l. 24).

**RESPONSE:** The examiner has expanded the text of the 101 rejections above in response to Applicant's traversal of the rejections under 35 USC 101.

**ARGUMENT B:** Traversal of 35 CFR 112-1<sup>st</sup> and 2<sup>nd</sup> paragraph rejections (p. 22, l. 1 – p. 25, l. 2).

**RESPONSE:** The examiner has expanded the text of the 101 rejections above in response to Applicant's traversal of the rejections under 35 USC 101.

**ARGUMENT C:** Request for Affidavits under 37 CFR 1.104 (p. 27, l. 1 – p. 28, end) regarding the well known use of relational databases, a network schema and a data dictionary.

**RESPONSE:** Evidence for the well known nature of relational databases, a network schema and a data dictionary to the ordinary practitioner of the art at the time of Applicant's invention are contained in the Microsoft Computer Dictionary for relational databases and a data dictionary. Bunte et al. disclose the use of network schema in US Patent 5,873,070 (Col. 3, ll. 52, 58; Col. 6, ll. 33, 65).

***Conclusion***



9. Claim 85 recites the limitations "business event network models". There is insufficient antecedent basis for this limitation in those claims because business event network models are not found in the disclosure.

10. Claims 43, 54, 67 and 80 are rejected under 35 U.S.C. 112, second paragraph, because they would require undue experimentation for the ordinary practitioner to put to productive, reliable use tangible and concrete use based on the guidelines for undue experimentation in MPEP 2164.01(a) because they would be beyond the level of one of ordinary skill to successfully use to produce concrete, reliable results which could be replicated, because the art claimed in the disclosure has poor predictability the invention would require an undue amount of direction by the inventor, because working samples of a concrete input and concrete output are lacking, and the quantity of experimentation needed to make or use the invention based on the content of the disclosure is excessive because it is indeterminable. This meets the test laid out in *In Re Wands*: "A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557,1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)."

11. Claims 52, 65, 78 and 85 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The expressions "intelligent", "direct effects" and "indirect effects" in claim 85 appear have been added by amendment after the first Office Action. The expression "business event network models" has been added by amendment to claims 52, 65 and 78 in the most recent response. None of these terms appear in the disclosure. Therefore there is insufficient antecedent basis for these limitations in these claims.

12. Claims 43, 54, 67 each recite the limitation "where each network model from a plurality of network models supports the development of a controlling forecast for use in optimizing purchasing". There is insufficient antecedent basis for this limitation in the



## BP NEURAL NETWORK OPTIMIZATION BASED ON AN IMPROVED GENETIC ALGORITHM

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### Abstract:

An improved Genetic Algorithm based on Evolutionarily Stable Strategy is proposed to optimize the initial weights of BP network in this paper. The improvement of GA lies in the introducing of a new mutation operator under control of a stable factor, which is found to be a very simple and effective searching operator. The experimental results in BP neural network optimization show that this algorithm can effectively avoid BP network converging to local optimum. It is found by comparison that the improved genetic algorithm can almost avoid the trap of local optimum and effectively improve the convergent speed.

### Keywords:

Evolutionarily stable strategy; Genetic algorithm; Neural network; Back propagation (BP) algorithm; Premature convergence

### 1 Introduction

In recent years, there have been many attempts in designing artificial neural networks automatically, in which the combination of evolutionary algorithms and neural networks has attracted a great deal of attention and one kind of evolutionary artificial neural network has been formed. Evolving neural networks by genetic algorithm were researched earliest of all.

The efficiency of GA has great influences on BP neural network (BPNN) optimization. During application of GA, however, there often exists a problem of premature convergence and stagnation<sup>[1]</sup>. Whitley think that selective pressure and selection noise are the main factors of affecting population diversity<sup>[2]</sup>. Higher selective pressure often leads to the loss of diversity in the population, which causes premature convergence at the same time of improving convergent speed. Therefore, keeping the balance between population diversity and convergent speed is very important to the performance of GA.

In recent years, many diversity preservation methods have been developed to avoid premature convergence to a local optimum. These can be divided into the following three subclasses:

1) Schemes of alleviating selective pressure to keep the biologic diversity, such as the modification of selection operator<sup>[3-5]</sup> and scale-transformation of fit

function<sup>[6]</sup>. Unfortunately, these methods often cause another problem of slow rate of convergence or stagnation in searching global optimum at the same time of improving population diversity.

2) Non-static mutation rate control schemes including dynamic<sup>[7-10]</sup>, adaptive or self-adaptive<sup>[10-12]</sup> mechanism to control the rate of mutation. The mutation operator is a main operator to keep the biologic diversity, especially in real-coded GA, because it introduces new search space and maintain the genetic diversity of a population, whereas the crossover operator only operates in the known search space. From this point of view, high mutation rate is good for searching the global solution. But too high mutation rate will result in blind stochastic search. It has been proved that deterministically varying mutation rates during the search have a better performance compared to the fixed mutation rate schemes. Unfortunately, there are some drawbacks in non-static mutation rate control schemes. The dynamic parameter control scheme requires for the user to devise a schedule specifying the rate at which the parameter is typically decreased. The self-adaptive scheme does not need such a specific schedule. Unfortunately it is rather complicated to explain to novice users, and as a result they usually prefer the simple fixed mutation rate scheme.

3) Spatial separation schemes<sup>[13-14]</sup>. One of the most important representatives is the distributed GA's (DGA's). Their premise lies in partitioning the population into several subpopulations, each one of them being processed by a GA independently of the others. Furthermore, a migration mechanism produces a chromosome exchange between the subpopulations. In this way, a distributed search and an effective local tuning may be obtained simultaneously. They are suitable for producing multi-resolution in search space but run risk of running too much CPU time.

A genetic algorithm based on evolutionarily stable strategy (ESSGA) is proposed in this paper to try to pursue better balance between population diversity and convergent speed by means of introducing a new kind of mutation operator under the control of a stable factor. Different from other mutation rate control schemes, this mutation operator only acts on some of the preponderant individuals under the control of a stable factor, which keeps the ratio of quantity



### REMARKS

The Assignee would like to thank the Examiner for the courtesy extended to Jeff Oster during his recent visit to Washington D.C..

It is our understanding that concern was expressed about the use of the word "relationship" in claim 43 during the interview. The Assignee has provided an excerpt from a network definition that shows the use of the word relationship in claim 43 is consistent with a formal definition of a network.

More formally, a network contains a set of objects (in mathematical terms, nodes) and a mapping or description of relations between the objects or nodes. The simplest network contains two objects, 1 and 2, and one relationship that links them. Nodes 1 and 2, for example, might be people, and the relationship that links them might be "are standing in the same room."

This definition of a network is well known to those of average skill in the arts of artificial intelligence (class 706), business methods (class 705) and data processing (class 707) that are contained in the above referenced application and other cross referenced applications.

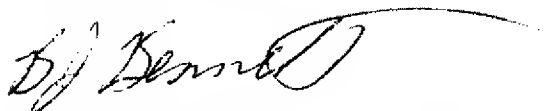
### Reservation of rights

The Assignee hereby explicitly reserves the right to present the previously modified and/or canceled claims for re-examination in their original format. The cancellation or modification of pending claims to put the instant application in a final form for allowance and issue is not to be construed as a surrender of subject matters covered by the original claims before their cancellation or modification.

### Conclusion

The pending claims are of a form and scope for allowance. Prompt notification thereof is respectfully requested.

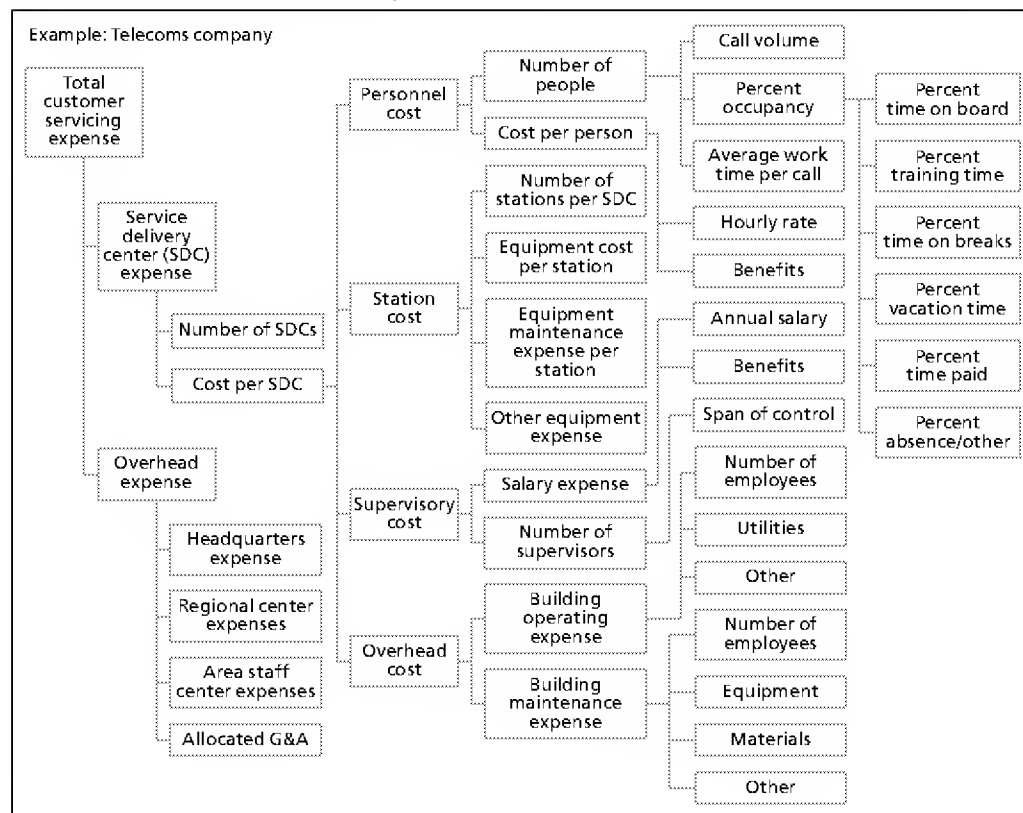
Respectfully submitted,



B.J. Bennett, President Asset Trust, Inc.  
Date: January 31, 2006

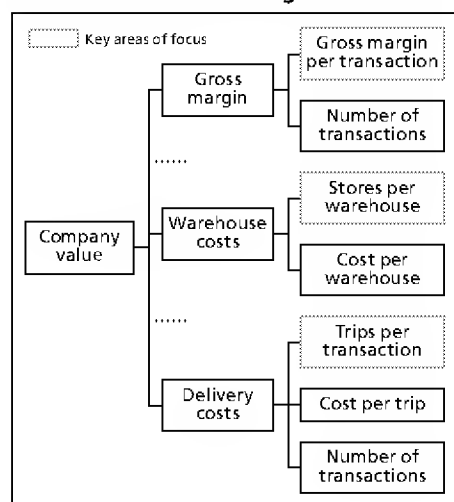


## Value drivers in customer servicing



What is important is that these key value drivers, although only a small part of the total business system, have a significant impact on value, are measurable from month to month, and are clearly under the control of line management.

## Value drivers for a hard goods retailer



To see how the numbers might work, consider the list of value drivers for a hard goods retailer shown in Exhibit 5. The value of the company derives partly from gross margin, warehouse costs, and delivery costs. Gross margin, in turn, is determined by gross margin per transaction and the number of transactions (which can be themselves further disaggregated if necessary). Warehouse costs are a function of the number of retail stores per warehouse and the cost per warehouse. Finally, delivery costs are determined by the number of trips per transaction, the cost per trip, and the number of transactions.



Network element	U.S. Patent 6,249,768
Data Collection	Within the SCN framework <u>we expect to integrate the beliefs, expert opinions, and measurable data in a way that aids the formulation and analysis of a firm's strategy</u> (see Tulsie Column 21, Line 67 through Column 22, Line 2)
Network structure: 1 <sup>st</sup> layer nodes and 2 <sup>nd</sup> layer nodes	First layer nodes are resources, second layer nodes are capabilities, "from a given core capability, <u>the modeler needs to identify the capabilities directly supported by it</u> . Support may be either positive (enhancing) or negative (conflicting). Then for each of these capabilities, the same process has to be repeated. As discussed above, <u>a capability identified in a previous step may need to be split into multiple capabilities when it turns out that there are multiple types of outcomes from that capability...</u> This process continues until the tangible firm assets and resources are identified and linked to the capabilities they support (see Tulsie, Column 20, Line 53 – C21, L 1)
Network structure: 3 <sup>rd</sup> layer nodes	Value propositions 101 appear at the top level. These are the major groupings of value that the firm offers. As a group, they may represent a unique offering to the market. General examples are: low cost, high quality, and customer convenience. (see Tulsie, Column 12, Line 11 through Line 14)
Network structure: Node connection weights – layer 1 to layer 2  and Node connection weights – layer 2 to layer 3	Relationships as depicted within this framework <u>are not necessarily completely deterministic or even necessarily observable</u> . They encompass all cause and effect linkages that are observable and all cause and effect linkages <u>that a management team believes to exist</u> . (see Tulsie, Column 21 Line 46 through Line 51)
Learning parameters	In some areas, these attributes are objectively observable or measurable. <u>In other cases, we must rely on more subjective individual or collective experience</u> . (see Tulsie, Column 9, Line 9 through Line 15)



## 11. Related Proceedings Appendix - None